

ACCESSION NR: AP4041130

struction of their superconductivity by means of current. V. P. Galayko investigated theoretically electron paramagnetic resonance in a superconducting film. The properties of hollow superconductors in the magnetic field (with a wall thickness much smaller than the depth of penetration) were considered by G. F. Zharkov and Hsu Lung-tao within the framework of the Ginzburg-Landau macroscopic theory.

N. V. Zavaritskiy reported a detailed tunnel-effect investigation of the anisotropy of the gap in tin. The energy gap in single-crystal tin was investigated also by the ultrasound absorption method (A. G. Shepelev). I. M. Dmitrenko, I. K. Yanson, and V. M. Svistunov investigated the properties of a three-layer superconducting film structure and the possibility of its utilization as a radiation detector in the near and middle infrared regions of the spectrum. N. B. Brandt and N. I. Ginzburg indicated the possibility of the transition of Cd, under hydrostatic compression, into a non-superconducting state without a change in the crystalline structure.

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B. G. Lazarev, L. S. Lazareva, T. A. Ignat'yeva, and V. I. Makarov investigated the influence of pressure and non-magnetic impurities of different valence on the temperature of the superconducting transition of Tl. V. L. Ginzburg made a general theoretical analysis of the influence of pressure on the width of the energy gap. I. A. Privorotskiy undertook an interesting attempt to explain the nonzero Knight shift observed in some superconductors at zero temperature. Closely related to his work is a communication by S. V. Vonsovskiy and M. S. Svirskiy concerning the influence of the singlet or triplet nature of the electron pairs on the state of superconductivity and concerning the conditions under which the formation of such pairs is energetically favored. The external photoeffect on a superconductor was investigated theoretically by V. V. Slezov. The American theoretician P. Hohenberg reported on his investigation of the influence of nonmagnetic impurities on the properties of anisotropic superconductors. Many new interesting effects were observed recently in the behavior of very pure metals in magnetic fields. E. A. Kaner

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and V. F. Gantmakher investigated theoretically and experimentally two effects connected with electrons drifting deep into the surface of a metal. M. Ya. Azbel' calculated theoretically the depth of penetration in a magnetic field parallel and perpendicular to the surface. In another paper, M. Ya. Azbel' and V. G. Peschanskiy established that in the presence of open plane Fermi-surface sections, a linear dependence of the resistance of metallic single crystals is possible only in a field parallel to the sample surface, and not in the case of an inclined magnetic field. E. A. Kaner and V. G. Skobov have shown that in a strong magnetic field, when the cyclotron frequency is large compared with the collision frequency, weakly damped electromagnetic excitations of different types exist in metals. The existence of weakly damped electromagnetic waves in metals also leads to many new resonance effects in the propagation of sound (Skobov and Kaner). F. G. Bass, A. Ya. Blank and M. I. Kaganov investigated theoretically the propagation of low frequency electromagnetic waves in a conducting gyrotropic medium under the conditions

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of normal skin effect.

Great interest was aroused by a communication by M. S. Khaykin, L. A. Fal'kovskiy, V. S. Edel'man, and R. T. Mina concerning an investigation of recently discovered magnetoplasma waves. Ye. P. Vol'skiy investigated quantum oscillations of conductivity of single-crystal bismuth and aluminum. Kh. I. Amirkhanov, R. I. Bashirov, Yu. E. Zakiyev, A. Yu. Mollayev, and Z. A. Ismailov measured the quantum oscillations of transverse magnetic resistivity in degenerate electronic samples of antimonides, and arsenides of indium and gallium (in pulsed fields up to 400 kOe). N. B. Brandt reported an investigation of the deHaas-vanAlphen effect in Bi-Se and Bi-Te alloys. The anisotropy of magnetoacoustic oscillations in single-crystal specimens of gallium was investigated by P. A. Bezuglyy, A. A. Galkin, A. I. Pushkin, S. G. Zhevago, and A. P. Korolyuk, and "giant" oscillations of the absorption coefficient of sound in bismuth were observed. Interesting features of "poor" metals of the bismuth type were discussed

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also by A. A. Abrikosov. Ye. V. Potapov investigated experimentally the optical properties of crystalline bismuth and antimony in the infrared region of the spectrum at 2°K. L. A. Fal'kovskiy has shown that spin-orbit coupling is the cause of the appreciable dependence of the g-factor in metals of the bismuth type on the quasimomentum. M. Ya. Azbel' and E. K. Skrotskaya calculated the diamagnetic susceptibility of the electron gas in very strong magnetic fields.

The possibility of the existence of a new type of quantum oscillations in metals was reported by M. Ya. Azbel'. In another report, M. Ya. Azbel' indicated the possibility of observing ordinary quantum oscillations (the deHaas-van Alphen effect, the Shubnikov-deHaas effect) at temperatures that are high compared with the distances between the Landau levels, but such that the Larmor radius is of the order of or smaller than the mean free paths of the electrons responsible for the oscillations. The deHaas-van Alphen method can be used in principle to obtain low temperatures (M. Ya. Azbel'). Another theoretical paper (G. A. Gogadze, F. Yu. Itskovich, and I. O.

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Kulik) is devoted to quantum oscillations of the cold-emission current of metals in a magnetic field. Two papers dealt with an investigation of the Fermi surface by the cyclotron resonance method -- studies of the anisotropy of the effective masses of electrons in zinc (V. P. Naberezhny\*kh and V. L. Mel'nik) and in aluminum (V. P. Naberezhny\*kh, V. L. Mel'nik, I. M. Glazman, A. I. Kononenko). V. G. Peschanskiy and D. S. Lekhtsiyer investigated theoretically the possibility of observing cyclotron resonance in a metal in an inclined magnetic field. The galvanomagnetic properties of Re and Be were discussed in a paper by N. Ye. Alekseyevskiy and V. S. Yegorov. The galvanomagnetic properties of Pd were investigated by N. Ye. Alekseyevskii, G. E. Karstens, and V. V. Mozhayev.

The effect of pressure on the galvanomagnetic properties of Zn and Cd was investigated by Yu. P. Gaydukov and E. S. Itskevich. B. S. Borisov, N. V. Volkenshteyn, P. S. Zy\*ryanov, and G. G. Taluts investigated the current-voltage characteristics of bismuth in a magnetic field at helium temperatures. I. O. Kulik investigated the de-

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pendence of the velocity of sound in a metal on the magnetic field and on the frequency of the sound. K. B. Vlasov and B. N. Filippov considered the possible rotation of the plane of polarization of ultrasound in magnetically-polarized metals. A paper by I. M. Lifshits was devoted to an explanation of the structure of the energy spectrum of impurity bands in unordered solid solutions. The absorption of the electromagnetic field by a metal is considered in another paper by I. M. Lifshits (with M. I. Kaganov). V. G. Lazarev, A. I. Sudovtsev, and F. Yu. Aliyev determined by direct measurements the electronic component of the thermal expansion coefficient for iron and nickel. R. N. Gurzhi has shown that at sufficiently low temperatures the interelectron collisions which are not accompanied by umklapp can greatly change the electric conductivity and can lead to a temperature minimum of the resistivity. B. I. Verkin, L. B. Kuzmicheva, and I. V. Svechkarev investigated some electronic properties of indium alloys. A. I. Belyayeva, V. V. Yermenko, and A. I. Zvyagin investigated the absorption spectra of antiferromagnets.

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L. S. Lukoshkin developed a method for determining some characteristics of the lattice and of the local center in a nonmetallic crystal from the form of the light-absorption bands. A paper by B. L. Timan dealt with the absorption of high-frequency transverse sound in dielectrics at low temperatures.

Yu. G. Litvinenko, V. V. Yermenko, and Yu. A. Popkov investigated the influence of strong magnetic fields (up to 200 kOe) on the absorption structure in the region of the  $^6S_{5/2} \rightarrow ^4G_{3/2}$  transition in  $MnF_2$  crystals below the Neel point for different field orientations. The same authors dealt also with the Zeeman effect in crystals of cadmium sulfide. Yu. A. Bratshevskiy, A. A. Galkin, and Yu. G. Litvinenko reported on resonant absorption in InSb by band carriers. A study of the acousto-electric effect in semiconductors was reported by S. V. Gantsevich and V. L. Gurevich. Two papers by R. N. Gurzhi concerned transport phenomena in solids. The first dealt with the in-

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fluence of anharmonisms of higher order on transport processes in solids. In the second it was shown that collisions between the quasi-particles (phonons, spin waves), not accompanied by umklapp, hinder greatly the process of momentum transfer from the quasiparticle gas to the boundaries in sufficiently large and pure specimens. A. V. Voronel', V. A. Popov, V. G. Simkin, Yu. R. Chashkin, and V. G. Snigirev measured the specific heat of oxygen and argon near the critical point. M. Ya. Azbel', A. V. Voronel', and M. Sh. Giterman proposed a theory for the critical point, in which the initial premises are the experimental data of the preceding work. K. K. Rebane, V. V. Khizhnyakov, and E. D. Trifonov reported a theoretical investigation of the vibrational structure of electron-vibrational bands. A. V. Leont'yeva, A. I. Prokhvatilov, and V. V. Pustovalov studied the temperature dependence of the hardness of polycrystalline methane and ammonia. Neutron diffraction patterns of solid oxygen were discussed by R. A. Alikhanov.

A special session was devoted to cryogenic techniques.

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Great interest was aroused by the paper of B. I. Danilov on the possibility of gas lubrication of a piston of a helium refrigeration motor. Several papers were devoted to hydrogen liquefiers, compressors and vacuum installations, and also to devices used in bubble chambers. A paper by M. P. Orlova, D. N. Astrov, and L. A. Medvedeva dealt with the establishment of a thermodynamic temperature scale in the 4.2--10K range. The secondary instruments were resistance thermometers made of single-crystal germanium doped with antimony, developed by VNIIFTRI in conjunction with GIREDMET. An international comparison of temperature scales was discussed by D. I. Sharevskaya, D. N. Astrov, and M. P. Orlova. The comparison was made at the National Physics Laboratory (England) and at VNIIFTRI. It was established that the discrepancy in electrical measurements made in different laboratories does not exceed 0.002K in its temperature equivalent. In the final plenary session, representatives of individual sections presented reviews of the most interesting communications. In the concluding remarks, the chairman of the Scientific

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ic Council of the problem of "Low Temperature Physics," corresponding member of the Academy of Sciences SSSR, N. E. Alekseyevskiy, summarized the result of the conference.

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: GP, NP

NR REF SOV: 000

ENCL: 00

OTHER: 000

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L 13612-66 EWT(d)/EWT(l)/EWT(m)/EPT(n)-2/EWP(t)/EWP(k)/EWP(b)/EWA(c) ZP(c)  
 ACC NR: AP6001670 JII/WW/JW/HW/RM SOURCE CODE: UR/0053/45/087/004/0723/0730  
 AUTHOR: Olekhovich, N. M.; Anufriyev, Yu. D.; Parshin, A. Ya.  
 ORG: none

TITLE: Eleventh all-union conference on low-temperature physics

SOURCE: Uspekhi fizicheskikh nauk, v. 87, no. 4, 1965, 723-730

TOPIC TAGS: physics conference, low temperature physics, superconductivity, cryogenic engineering, thermodynamics, liquid helium, solid state physics, heat conductivity, superfluidity, current density, magnetic field, magnetoresistance, crystal anisotropy, thermomagnetic effect, thermal emf

ABSTRACT: The Eleventh All-Union Conference on Low-Temperature Physics was held in Minsk at the Institute of Solid-State Physics and Semiconductors of the Belorussian Academy of Sciences from 27 June through 2 July 1964. More than 400 delegates, including representatives of almost all the organizations in the Soviet Union which are conducting low-temperature research, and scientists from East Germany, Poland, Czechoslovakia, Bulgaria, Hungary, and Yugoslavia, were present. The more than 100 papers presented dealt with the properties of helium, superconductivity, the physical properties of condensed media, low-temperature thermodynamics, cryogenic engineering, and other problems. The chairman of the Scientific Council on Low Temperature Physics, N. Ye. Alekseyevskiy, discussed the state-of-the-art in low temperature physics and remarked on the fruitfulness of conferences in the area as well.

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as the necessity for further coordination of the subjects being investigated. A group of Georgian physicists (R. A. Bablidze, G. V. Gudzhabidze, and Dzh. S. Tsakadze), working under the direction of Academician E. L. Andronikashvili, presented a review on the phase transition in rotating liquid helium. The first part of their paper was concerned with the relaxation of quantum eddies. The second part dealt with the generation of vortices during the cooling of rotating He below the  $\lambda$ -point. It was determined that during rotation of He II with an angular velocity corresponding to the maximum of the vortex damping, the disappearance of vortices during transition over the  $\lambda$ -point proceeds very slowly. The time of the formation of vortices was shown to be  $\tau = \tau_0 \exp [-(\omega - \omega_{oc}) / \alpha]$ , where  $\omega_{oc}$  is the critical angular velocity for a given vessel,  $\omega$  is the angular velocity of rotation,  $\tau \approx 900$  sec, and  $\alpha = 1.18 \text{ sec}^{-1}$ . It was also determined that the inner surface of the rotating glass does not exert any influence on the formation of the vortex filaments. G. A. Gamtsemlidze reported on results of measurements of the damping of torsional vibrations of a disk in He II after the stopping of the rotating liquid. Khar'kov physicists I. V. Bogoyavlenskiy, N. G. Bereznyak, and B. N. Yesel'son reported on an investigation of the state He<sup>3</sup>-He<sup>4</sup> mixtures. They established that in a pressure range from 50 to 140 atm the diagram representing the state of the He<sup>3</sup>-He<sup>4</sup> mixture is of peritectic type. L. P. Mezhev-Doglin reported on the thermal conductivity of solid He<sup>4</sup> (whose properties are being intensively studied in Moscow) in a temperature range from 0.5 to 2.5°K and

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pressures up to 185 atm. The maximum values for thermal conductivity were approximately three times higher than the best results obtained previously, which attests to the high quality of the crystals investigated. R. N. Gurzhi discussed his theory describing the dependence of thermal conductivity of such crystals on temperature. Kapitza's jump on the He<sup>4</sup>-copper boundary was also surveyed in this work. The superfluidity of the light isotope He<sup>3</sup> was treated in a report by V. P. Peshkov. In experiments with three-staged magnetic cooling of a block of paramagnetic salt, having liquid He<sup>3</sup> in its pores, Peshkov showed that at a temperature of 0.0055°K the specific heat of He<sup>3</sup> has a maximum. Such behavior of the specific heat is attributed to the phase transition of He<sup>3</sup> into a new state. A rather large number of papers was devoted to superconductivity. N. B. Brandt and N. I. Ginzburg investigated the influence of high pressures (up to 30,000 atm) on the superconductivity properties of various metals. The nontransition metals (Cd, Sn, In) display a decrease of  $T_k$  when the pressure decreases, while  $dH_k/dT_k|_{T_k}$  remains constant, thus indicating that the density of states  $N(0)$  on the Fermi surface is constant. A decrease of  $T_k$  at  $N(0) = \text{const}$  can be linked with a decrease of the electron-phonon interaction parameter in the microscopic theory of superconductivity. Another mechanism apparently takes place in the transition metals (Zn, Ti). Here, an increase in  $dH_k/dT_k|_{T_k}$  and  $T_1$  when the pressure increases can be observed. It can thus be concluded that  $N(0)$  increases when the pressure increases. T. A. Ignat'yeva, B. G. Lazarev,

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L. S. Lazareva, and V. I. Makarov reported on the influence of impurities (Hg, Bi, Sb) on the variation of  $T_k$  in thallium under pressure, and on the dependence of the pressure effect on the concentration and valence of impurity atoms. They found that the effect of pressure at a sufficiently large concentration becomes negative independently of the kind of impurity. Yu. Bychkov, I. N. Goncharov, M. Litominskiy, I. Ruzhichka, and I. S. Khukhareva measured the critical current densities in large magnetic fields on Nb-80% Zr wires subjected to different thermal treatment. A. I. Rusinov and Ye. A. Shapoval discussed the dependence of the energy

gap of a superconductor and of the depth to which a magnetic field penetrates into it on the magnitude of the field in the case of the mirror reflection of electrons from the surface of metals. The extreme cases of absolute zero and temperatures close to  $T_k$  were investigated for Pippard and London superconductors. Also obtained for Pippard metals ( $\kappa^2 \ll 1$ ) were formulas for a temperature range not too close to  $T_k$  ( $\kappa^2 \ll 1 - (T/T_k) \ll 1$ ), where a non-localizable situation occurs. In a region of localizability, the

results coincide with the Ginzburg-Landau theory. In previous theoretical works, R. N. Gurzhi predicted that at low temperatures, when the probability is small of collisions occurring between the excitation sources (electrons and phonons) associated with the processes of transfer, the transfer phenomena can display a series of interesting peculiarities. Gurzhi presented two more reports on this subject at the

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conference. In one report, the high-frequency properties of very pure metals were investigated at low temperatures. Apparently, electron-phonon processes not associated with transfer processes exert a substantial influence on the skin-effect. In particular, a wide range of frequencies appears in which the surface impedance depends on the frequency and the temperature, unlike the general cases of normal and anomalous skin-effect. V. L. Gurevich, V. M. Muzhdaba, R. V. Parfenyev, Yu. A. Firsov, and S. S. Shalyt submitted a report on the experimental observation of a new type of oscillations of magnetoresistance of indium electron antimonide. The physical basis of this phenomenon is associated with a resonance scattering of the current carriers on optical phonons in strong magnetic fields  $\Omega\tau \gg 1$ , where  $\Omega$  is a cyclotron frequency and  $\tau$  is the relaxation time of conduction electrons. On diagrams of the transverse and longitudinal magnetoresistances, the authors discovered a series of oscillation extremums periodic with the reverse field. The period of the oscillations is in a good agreement with the theoretical formula. I. E. Gurevich and B. L. Gel'mont established that in metals and semimetals when there is a temperature gradient a new type of wave appears at low temperatures, the so-called thermomagnetic waves (TMW). TMW were investigated both in the presence and in the absence of an external field. The conditions for a weak attenuation without a magnetic field were found. When an electromagnetic wave is incident on a body which has a temperature gradient, the refracted wave can become an amplifying wave if there is a magnetic

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field. The anisotropy of the Mossbauer effect on single crystals of white tin was investigated by N. Ye. Alekseyevskiy, A. P. Kir'yanov, Yu. A. Samarskiy, and V. I. Nizhankovskiy. Their data confirmed the previously observed change in the anisotropy of the effect with temperature. They also measured chemical shifts of the Mossbauer line in different inter-metallic compounds of tin within a wide range of temperatures. V. A. Bryukhanov, N. N. Delyagin, and V. S. Shpinel' also measured the chemical shift by means of the Mossbauer effect method and calculated the change in electron density in  $\text{Sn}^{119}$  nuclei by introducing them into different metal sheets as an impurity. In their opinion, a relationship exists between the electron density in the nucleus of the impurity atom and the dynamic characteristics of the sheet. L. E. Gurevich and I. Ya. Korenblit studied the thermal emf of ferromagnetic metals at low temperatures. Longitudinal and transversal thermal emf were investigated in a range of magnetic fields and temperatures in which an exchange member played the basic role in magnon energy and the magnons were scattered primarily by electrons. A dependence of thermal emf on temperature was determined. Two reports dealt with superconductive resonators which can be used for acceleration. B. I. Verkin, O. M. Dmitriyenko, V. M. Dmitriyev, G. Ye. Churilov, and Yu. M. Borodavko reported on an investigation of superconductive resonators of the 3-cm range prepared from lead by various means. I. S. Sidorenko and Ye. I. Revutskiy investigated the

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high-frequency properties of lead superconductive films deposited on current-carrying surfaces of copper resonators. [FSB: v.2, no. 2]

SUB CODE: 20 / SUM DATE: none

Cord 7/7

ANUFRIYEV, Yu.N.; USHAKOVSKIY, V.T.

Genesis of quartz placers in the Urals. Trudy IGEM no.40:46-61 '69.  
(MIRA 13:11)

(Ural Mountains--Quartz)

KONDRASHEV, S.N.; ANUFRIYEV, Yu.N.

General problems relative to the use of geophysical methods in prospecting for piezooptic quartz deposits. Trudy VNIIP [MS] 3 no.2:  
51-60 '60. (MIRA 14:4)  
(Quartz) (Prospecting—Geophysical methods)

ANUFRIYEV, Yu.N.

Effect of underlying rocks on the formation of crystal-bearing  
quartz veins. Zap.Vses.min.ob-va 92 no.2:175-186 '62. (MIRA 15:6)  
(Quartz)

**"APPROVED FOR RELEASE: 06/19/2000**

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ANUFRIYEV, Yu. P.: Master Tech Sci (diss) -- "Parts control by non-destructive methods in repairing tractors and agricultural machines (The selection of methods and development of a methodology)". Moscow, 1959. 24 pp (Min Agric USSR, Moscow Inst of the Mechanization and Electrification of Agric), 150 copies (KL, No 18, 1959, 124)



LEVEREV, V.I. & DUDNIKOV, G.M.; PAPIROV, G.I.; MOSKALOV, V.K.; ALEXANDROV,  
Yu.F.

Investigating certain properties and the mechanism of the deformation  
of graphite. Konstr. uglograf. nat. no.1:126-129 '64.

CHRA 17:11

L 36927-66 EWT(d)/EWP(e)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) WW/WH

ACC NR: AP6012221

SOURCE CODE: UR/0032/66/032/004/0459/0462

AUTHOR: Barabanov, V. N.; Anufriyev, Yu. P.; Zaytsev, G. G.; Pimkin, M. Ya.

ORG: none

TITLE: Description of the method and the results of fatigue tests on graphite with alternating bending

SOURCE: Zavodskaya laboratoriya, v. 32, no. 4, 1966, 459-462

TOPIC TAGS: fatigue strength, graphite

ABSTRACT: Material for the tests was high density construction graphite ( $\gamma = 1.78-1.9$  grams/cm<sup>2</sup>). The tests were carried out in a type MUI-6000 machine, at room temperature, with a symmetrical cycle. The diameter of the working section was taken as 15 mm. This was based on an attempt to increase the initial strength of the sample, and, at the same time, to decrease the relative error of the determination of the fatigue limit and to decrease the scatter of the experimental data, which increases with an increase in diameter. Results of testing samples with a cylindrical working section are shown in a figure. According to the experimental data, the fatigue limit for the construction graphite under

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examination, with simple bending of a rotating sample, may be taken approximately as equal to 140 kgf/cm<sup>2</sup> in a parallel direction and 100 kgf/cm<sup>2</sup> in a perpendicular direction. These results are said to be only approximate but suitable for use in calculations. Orig. art. has: 2 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

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ANUPRIYEVA, A.

Spartakiada of the strong and the brave. Prof.-tech. obr.  
21 no.10:17 0 164. (MIRA 17:11)

1. Ispolnyayushchiy obyazannosti nachal'nika etapa fizicheskoy  
podgotovki i sporta Tsentral'nogo soveta vsesoyuznogo dobrevol'-  
nogo sportivnogo obshchestva "trudovyye rezervy".

XXXXXXXXXX, P. V., XXXXXXXXXXXXX, H. V., and XXXXX, H. H.

"Inhibition of styrene polymerization by anthracene," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 29 Jan-2 Feb 57, Moscow, Organic Chemistry Research Inst.

B-3,004,395



SIVACHEV, V.D., inzh.; ANUFRIYEVA, L.A., inzh.

Adsorption fillers for manometric thermal sensitive systems  
of heat control instruments. Khol. tekhn. 38 no.3:44-45 My-Je  
'61. (MIRA 15:1)

(Manometer)

(Refrigeration and refrigerating machinery)  
(Temperature regulators)

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CIA-RDP86-00513R000101820009-0"

KORNYENKO-KORNYA, A. P.; ANUFAYEVA, L. N.

Goats - Diseases

Haemosporidiosis among the lesser Bovidae and agents that carry them in Turkmenistan.  
Izv. Turk. fil. AN SSSR No. 1, 1951.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

1. ANUFRIYEVA, M. I.
2. SSSR (600)
4. Pinsk Province-Chalk
7. Report on the prospecting activities for chalk in the Logishin, Ivanovo, and Drogichin Districts of the Pinsk Province.  
Abstrat. Izv. Glav. upr. geol. fon. No. 3, 1947

9. Monthly Lists of Russian Accessions, Library of Congress, March 1953. Unclassified.

SAPOZHKOVA, K.A., meditsinskaya sostra; ANUPRIYEVA, N.A., meditsinskaya sostra

Tuberculosis meningitis. Role of the medical nurse in the treatment  
of tuberculosis meningitis. Med. sostra 19 no.9:29-34 S '60.

(MIRA 13:9)

(MENINGES--TUBERCULOSIS)

(NURSES AND NURSING)

18.7530

1416 2808 1087  
26557

S/126/61/012/002/006/019  
E111/E435

AUTHORS: Rutkovskiy, M.L., Anufriyeva, N.A., Kop'yeva, O.M.  
Potapova, N.V. and Kazakov, I.V.

TITLE: Kinetics of gas boriding of nickel

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.12, No.2,  
pp.217-222

TEXT: Materials such as borides, silicides and carbides satisfy the requirements of high chemical stability and resistance to erosion which technical developments are imposing. No substantial investigation on the rate of boriding has yet been reported and there is some divergence of views on results obtainable (e.g. Ref.10; Zhigach A.F. and others, Metallovedeniye i termicheskaya obrabotka, 1959, No.4, 45; and Ref.11; Weintraub E. Ind. a. Eng. Chem., 1911, 3, 299). The authors have studied the gas boriding of nickel at 900°C using a 1:4-1:10 mixture of boron trichloride and hydrogen. The gas mixture was stored in a cylinder and admitted, at a measured rate, to a 30 mm diameter horizontal quartz reaction tube (in a furnace) which could also be flushed with nitrogen. The flow of the gas mixture was started when the temperature reached 500 to 600°C. Specimens were in the Card 1/3

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Kinetics of gas boriding ...S/126/61/012/002/006/019  
E111/E435

form of rectangular 25 x 10 x 2 mm nickel plates, cleaned with emery and washed with alcohol. After thickness measurement with a micrometer the specimens were weighed. The thickness  $\Delta l$  of metal consumed in the formation of the boride film was taken to be half the difference between the initial and final thicknesses (measured at the centre of the specimen). A linear relation between  $\Delta l$  (mm) and boriding time (hours) (from attainment of the working temperature, 900°C) was found,  $\Delta l$  being 0.8 at the maximum of 30 hours. Gas flows of 6, 24 and 96 litres/hour were used, the corresponding weight-gains in g/m<sup>2</sup> hour being 26.6, 54.1 and 99. All flow rates were in the laminar range. From the results the authors conclude that the rate-controlling factor was boron diffusion from the gas phase to the metal surface. In the range studied, the weight-gain rate (i.e. boriding rate) was found to be practically independent of the boron trichloride to hydrogen ratios. This suggests that the trichloride does not participate directly in boriding but forms an active intermediate compound. A check on the weight of nickel lost during boriding showed that it was under 1%, indicating that nickel dichloride is not formed: this is

Card 2/3



Kinetics of gas boriding 26557

S/126/61/012/002/006/019  
E111/E435

Contrary to the views of Powell. The boride film was found to consist of three layers (probably  $\text{NiB}$  outside, followed by  $\text{Ni}_3\text{B}_2$  and  $\text{Ni}_2\text{B}$ ) with different microhardness. The inner layer is thinnest. The boundaries between the layers are probably non-borided or weakly borided components, such as carbon, copper, sulphur or silicon. All the boundaries are serrated. V.K.Kryukova and Z.A.Borisova and M.L.Mironenko participated in the experiments. There are 5 figures and 17 references: 12 Soviet and 5 non-Soviet. The two references to English language publications read as follows:  
Laubengayer A.W., Hurd D.T., Newkirk A.E., Hoard J.L.,  
J. Am. Chem. Soc., 1943, Vol. 65, 1924.  
Weintraub E. Ind. a. Eng. Chem., 1911, 3, 299.

SUBMITTED: October 14, 1960 (initially)  
January 13, 1961 (after revision)

X

Card 3/3

1.1800

26565

S/126/61/012/002/016/019  
E073/E335

AUTHORS: Rutkovskiy, M.L., Anufriyeva, N.A., Kop'yeva, O.M.  
and Potapova, N.V.

TITLE: On the Causes of a Linear Relation Between the  
Thickness of the Layer and Duration of the Process  
of Borating Nickel

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol. 12,  
No. 2, pp. 292 - 294

TEXT: In an earlier paper (Ref. 1 - FMM, 1961, 12, 217)  
the authors and I.V. Kazakov have shown that in borating nickel  
a linear dependence was observed between the thickness of the  
metal layers  $\Delta l$  expended on forming the boron film and the  
time of boron deposition  $\tau$  for  $\Delta l \leq 0.8$  mm. Usually,  
the curve reflecting the speed of the diffusion process is a  
parabola, for which the equation  $y^2 = f \cdot \tau$  is valid; linear  
dependence between the thickness of the layer and the time is  
possible only if the forming film has mechanical defects along  
which the diffusing substance migrates to the surface of the  
Card 1/4

X

On the Causes of ....<sup>26565</sup>

S/126/61/012/002/016/019  
E073/E335

base material. A photograph of a polished microsection of a boride layer is reproduced, from which it is concluded that the linear dependence is not due to mechanical defects of the film since defects at a direction normal to the surface of the specimen were not detected in the film. Comparison of the structure of boride films on nickel and cobalt has shown that they are qualitatively equal in spite of the fact that the increase in thickness of the boride film obeys the parabolic law in the case of cobalt and the linear law in the case of nickel; Figs. 3 and 4 show the dependence of the thickness of the borated layer  $\Delta l$ , mm as a function of time, hrs, for a borating temperature of 900 °C for nickel and cobalt, respectively. It was established that the temperature coefficient of the speed of borating nickel at temperatures above 900 °C was considerably higher than was anticipated on the basis of the exponential time dependence of the diffusion coefficient. If borating was at 1 000 °C the eutectic NiB + Ni<sub>3</sub>B<sub>2</sub> with a fusion temperature of 990 °C formed and the specimens

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26565

On the Causes of ....

S/126/61/012/002/016/019  
E073/E335

melted off. Formation of this eutectic led to the idea that in the case of the formation of borides being exothermal the linear dependence between the thickness of the borated layer and the time at temperatures not differing greatly from the temperature of formation of the eutectic can be explained as follows. At the surface of the nickel specimens which is subjected to borating there will be concentrational fluctuations; due to the exothermal nature of the process this will lead to a local increase in the temperature in the borated specimen and to the formation of a low melting-point eutectic at these points. The diffusion coefficient at these points will increase instantaneously and this will lead to an overall increase in the diffusion coefficient and will result in a linear dependence between the thickness of the layer and the borating time. Conservation of the parabolic dependence in the case of cobalt is obviously due to the fact that the temperature of formation of the low melting-point eutectic Co-B, which is  $1105^{\circ}\text{C}$ , exceeds the borating temperature by  $205^{\circ}\text{C}$ , whilst in the case of nickel this temperature difference is only

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On the Causes of ....

S/126/61/012/002/016/019  
E073/E335

90 °C. Thus, the heat released during borating of cobalt is apparently inadequate for producing a low melting-point eutectic at the spots where concentration fluctuations occur and, as a result of this, the parabolic dependence  $\Delta(\gamma) = f(\gamma)$  is maintained in the case of borating cobalt under the given temperature conditions. There are 4 figures and 4 references: 3 Soviet and 1 non-Soviet. The English-language reference quoted is: Ref. 3 - Brewer, Dwight L. Sawyer et al - J. Amer. Ceramic Soc., 1951, 34, 173.

SUBMITTED: February 28, 1961

Card 4/4

82614

183100

S/180/60/000/004/002/027  
R111/E452AUTHORS: Anufriyeva, N.I. and Ivanov, A.I. (Leningrad)TITLE: Electrolysis of Titanium Dioxide in Fused Salts

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.4, pp.9-14

TEXT: The authors briefly review attempts to obtain titanium by electrolysis (Ref.1 to 6). They give results of their own work on the electrolysis of titanium dioxide in fluoride, fluoride-chloride and chloride melts, which was accompanied by determinations of  $TiO_2$  solubility in such melts. At 800 to 950°C and cathode current densities of 0.5 to 3.0 amp/cm<sup>2</sup> and with a fused aluminium cathode, alloys with 7 to 12% (sometimes 30) Ti were obtained from fluoride and chloride-fluoride melts, but the element could not be satisfactorily separated from the aluminium; with solid molybdenum or tungsten cathodes an impure, difficultly purifiable deposit was obtained. For chloride melts an electrolyser (Fig.1) with a graphite anode and a molybdenum or tungsten rod (3 to 10 mm diameter) was used, in which an inert atmosphere was maintained. Deposition continued for 1 to 2 hours at 50 amp and 5 to 6 volts. After water treatment the deposit contained 5% impurities of which

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82614

S/180/60/000/004/002/027

E111/E452

**Electrolysis of Titanium Dioxide in Fused Salts**

the main was silicon derived from the porcelain of the container. The dependence of current efficiency and of cathodic-deposit oxygen content on various factors is shown by curves 1 and 2 respectively in Fig.2 (dependence on initial  $\text{TiO}_2$  content of electrolyte), Fig.3 (on grains of  $\text{TiO}_2$  added per hour to keep 5%  $\text{TiO}_2$  in the melt), Fig.4 (as Fig.3 but for 1%  $\text{TiO}_2$ ). The effect of temperature and rate of  $\text{TiO}_2$  addition is shown in Table 1. Experiments were also carried out with a rutile concentrate (91%  $\text{TiO}_2$ , 0.95%  $\text{SiO}_2$ , 4.47%  $\text{Fe}_2\text{O}_3$ , 0.19%  $\text{ZrO}_2$ ) with an electrolyte of 65%  $\text{CaCl}_2$ , 25%  $\text{BaCl}_2$  and 10%  $\text{NaCl}$  at  $750^\circ\text{C}$  and a current density of 15 amp/cm<sup>2</sup>. The effect of rutile concentrate size on the titanium content of the deposit is shown in Table 2: in general, higher contents were obtained with finer concentrate. The work shows that titanium can be obtained electrolytically under specified conditions directly from  $\text{TiO}_2$  or rutile concentrate. The authors show that the mechanism of the process consists basically of cathodic discharge of calcium ions, partial solution of calcium in  $\text{CaCl}_2$  and reduction by the



Card 2/3

18.3100 1081

S/598/61/000/006/018/034  
D228/D303

AUTHORS: Ivanov, A.I. and Anufriyeva, N.I.

TITLE: Electrolysis of titanium dioxide in molten chloride salts

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokimiya titana, 131 - 135

TEXT: Experiments on the electrolysis of commercial titania, rutile concentrate, and rich Ti-slag in molten chlorides ( $\text{CaCl}_2$  with 20 - 50 %  $\text{BaCl}_2$  and  $\text{NaCl}$ ) were carried out at 750-800° and 1000 - 1500 amp. over a period of about 500 hr. in an electrolyzer composed of the following basic units: a Mg-brick-lined bath with a graphite anode and a steel or Mo cathode; a hermetically-fixed cell; a device for decanting the electrolyte and slime; and a receiver with a pouring funnel, spherical stopper, and leverage system. The cathode and anode current-densities were 3 - 8 and 8.8 - 1.0 amp/cm<sup>2</sup>, respectively, the interpolar distance being 300 mm. Conclu-

Card 1/3



Electrolysis of titanium dioxide ...

S/598/61/<sup>31033</sup>000/006/018/034  
D228/D303

clusions: After removing all the adhering electrolyte the cathode deposit contained 95 - 97, 90 - 91, and 80 - 85 % metallic Ti when commercial titania, rutile concentrate, and Ti-slag were respectively electrolyzed. The electrorefining of Ti prepared from the former material reduces the content of impurities -- Si, Fe, Mg, Al, C, N, and O -- to the quite acceptable limit of 0.23 - 0.35 %. The precipitate resulting from the electrolysis of rutile concentrate and slag also requires further refining before it is fit for industrial use. The authors worked out certain technological bases for the electrolysis of titania. These include the preliminary saturation of the electrolyte by titania, the continuous introduction of raw material, the periodic renewal of the electrolyte owing to the accumulation of slimes ( $\text{CaO}$ ,  $\text{CaTiO}_3$ ,  $\text{TiO}_2$ , etc.) and the possibility of repeatedly using the electrolyte and slime separated from it after their purification by chlorination. The optimum current-density (3 - 5 amp/cm<sup>2</sup>) and diameter (15 - 30 mm) for the cathode were also established. However, the experimental data disclose the existence of certain defects due both to mechanical and procedural shortcomings: The poor cohesion of the deposit with the cathode and

Card 2/3

ANUFRIYEVA, N.I.

Electrode processes in titanium refining. Titan i ego splavy no.9:  
236-241 '63. (MIRA 16:9)  
(Titanium—Electrometallurgy)

ANUFRIYEVA, N.I.

Studying individual problems in the technology of electrorefining  
titanium. Titan i ego splavy no.9:242-247 '63. (MIRA 16:9)  
(Titanium—Electrometallurgy)

L 2h132-66 EWT(1)/EWT(m)/ETC(F)/EPP(n)-2/EPP(m)/T/EPP(t) IJP(c) JD/AT  
 Acc-NR-AP6011014 SOURCE CODE: UR/0080/66/039/003/0577/0584

AUTHOR: Gopiyenko, V. G.; Anufriyeva, N. I.; Klyuchnikova, Ye. F. 4.2

ORG: none 13

TITLE: Cathode crystallization during titanium purification in melted salts 2/ 2/

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 3, 1966, 577-584 18

TOPIC TAGS: titanium, metal purification, electrocrystallization, chloride, electrolyte, electrolysis, titanium electrocrystallization

ABSTRACT: In studying the electrocrystallization of titanium from melts and development of electrolytic methods of preparing and refining titanium, it has been determined that titanium crystallizes at the cathode at temperatures of 700 to 900C in five basic crystal forms, namely, needle-shaped, prismatic, laminar, octahedral, and finely disperse. A marked growth and further development of forms in crystal grains was observed at temperatures of 700 to 850C. Cathode metals of various coarseness (except for the 0.25 mm size) are basically of identical shape but differ in sizes of crystals. The effects of the concentrations of titanium chlorides in the electrolyte, duration of electrolysis, process temperatures, and impurities of certain salts in the electrolyte on titanium electrocrystallization are shown. 2

Cord 1/2

UDC: 621.357.9+546.821

ACC NR: AP6011014

Orig. art. has: 7 figures. [Based on author's conclusions] [NT] 0

SUB CODE: 07/ SUBM DATE: 17Jul64/ ORIG REF: 004/ OTH REF: 004/

Card

2/2 BK

(A) L 13494-65 ENT(m)/ENP(j) RM

ACC NR: AP6001680

SOURCE CODE: UR/0303/65/001/006/0011/0013

AUTHORS: Yermolayeva, T. A.; Bogatyrev, P. M.; Anufriyeva, N. S.

ORG: none

TITLE: Use of perovskite and titanite concentrates as pigments

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 6, 1965, 11-13

TOPIC TAGS: titanium compound, pigment/ FSKh agricultural enamel

ABSTRACT: Use of perovskite (I) and titanite (II) concentrates as atmospherically resistant pigments is proposed. Both I and II contain only 12 to 20% of  $TiO_2$ , and isolation of the latter is complicated and uneconomical. It was found that by calcining I and II concentrates at 800C for 2 hours and then grinding the resulting product, satisfactory pigments are produced. These are pale brown in the case of I and beige in the case of II. These materials were used in the preparation of enamels of brand FSKh for agricultural uses. The products compared favorably with those containing  $TiO_2$  or  $ZnO$  in water resistance, hardness, elasticity, impact resistance, and weathering resistance. Orig. art. has: 4 tables.

SUB CODE: 11, 07/ SUBM DATE: none/ ORIG REF: 002

Card 1/1 HW

UDC: 667.622

Z/011/61/018/001/011/014  
E112/E453

AUTHORS: Yermolayeva, T.A. and Anufriyeva, N.S.

TITLE: Properties of rutile white produced by hydrolysis of aqueous solutions of titanium tetrachloride

PERIODICAL: *Chemie a chemicka technologie*, 1961, Vol.18, No.1, p.33, abstract Ch 61-448 (Lakokras. Materialy, 1960, No.1, pp.38-41)

TEXT: The effect of  $TiCl_4$  concentration, number of added nuclei of crystallization, concentration of crystallization catalysts and temperature of fusion on the properties of the produced titanium pigment were investigated. Rutile titanium white, produced from  $TiCl_4$  was found to have poor weathering resistance (similar to anatase titanium white). In other physical or mechanical properties it is superior to the anatase type. 4 tables, 4 literature references.

[Abstractor's note: Complete translation.]

Card 1/1

YERMOLAYEVA, T.A.; ANUPRIYEVA, N.S.

Properties of rutile obtained by the hydrolysis of titanium tetra-  
chloride aqueous solutions. *Lakokras.mat.* 1 ikh prim. no.1:38-41  
'60. (MIRA 14:4)

(Rutile)

(Titanium chloride)



S/081/62/000/024/030/052  
B119/B186

AUTHORS: Yermolayeva, T. A., Borodina, M. L., Abramson, D. L.,  
Smetankina, T. A., Anufriyeva, N. S., Potapova, M. P.

TITLE: Modification of titanium dioxide in the rutile form to  
improve its physical and technical properties

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24(II), 1962, 903,  
abstract 24P625 (Lakokrasochn. materialy i ikh primeneniye,  
no.1, 1962, 20-25)

TEXT: Investigations were made to find modifying substances (MS) for improving the physical and technical properties of titanium dioxide in the rutile modification (rutile) (I), to develop a method of applying MS to the surface of I, and to study the effect of MS on the properties of I. It was found that the effect of MS was much greater when they were mixed with I by additional wet grinding in a ball mill or in an apparatus with stirrer (mixing machine) (adapted for further investigations) than in the dry procedure. I consisting of 70% particles  $< 1\mu$ , or I in a finely disperse form (with  $\sim 85\%$  particles  $< 1\mu$ ) which settles in small

Card 1/2

Modification of titanium dioxide ...

S/081/62/000/G24/030/052  
B119/B186

amounts in the filter bags of a Loesch mill, is used for the experiments. MS, like amines of the aliphatic series and other organic compounds, affect only slightly the color intensity, the covering power, and the resistance to air (of I) but reduce the absorption power of moisture by a factor of 1.5 to 2 as well as the settling of I in the finished enamels, and improve the resistance to abrasion. The best results were obtained with 1% addition of alkamon oc -2 (OS-2) (PA), of quaternary ammonium salts of diethyl aminomethyl glycol ethers of higher fat alcohols. An optimum method of modifying I was developed. Solutions of aluminum, silicon, and phosphorus compounds were successively poured, stirring all the time, into an aqueous suspension of disperse I containing 200 g/liter of  $\text{TiO}_2$ . The washing out is followed by treatment with PA, filtration, drying of the residue, and fine grinding in a jet mill. The best results are obtained by introduction of 2.8% aluminum phosphate with subsequent application of 0.5% PA. The color intensity of I increases by 8-20%, the photochemical activity decreases to  $1/3 - 1/4$  (literally: by the 3-4 fold), the resistance to abrasion is improved. The resistance of the coat to chalking is doubled. [Abst. author's note: Complete translation.]

Card 2/2

YERMOLAYEVA, T.A.; ABRAMSON, D.L.; ANUFRIYEVA, N.S.

Obtaining a modification of anatase titanium dioxide for  
improving its physical and technical properties. Lakokras.mat.  
1 ikh prim. no.1:36-38 '63. (MIRA 16:2)  
(Titanium oxides)

L 1876-65 ENP(e)/EPA(s)-2/ENT(m)/ETC(c)/ENP(1)/ENP(b)/EPA(n)-2/ETC(m) IJP(c)  
ACCESSION NR: AP5022508 JD/WH/WH UR/0303/65/000/004/0013/0018  
667.629:667.622.118.2

AUTHOR: Yermolayeva, T. A.; Abramson, D. L.; Smetankina, T. A.; Anufriyeva, N. S.

TITLE: Modification of rutile titanium dioxide by compounds of aluminum, silicon, and titanium for the purpose of improving its physicochemical properties

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 4, 1965, 13-18

TOPIC TAGS: titanium dioxide, aluminum oxide, silicon compound, titanium compound, orthophosphoric acid, silicon dioxide, aluminum compound

ABSTRACT: The object of the study was to perfect a technique elaborated earlier for modifying rutile by depositing it on the surface of basic aluminum phosphate, and also to find new effective methods of modification. The following more effective and more economic methods were developed: (a) modification by basic aluminum phosphate and silicic acid, resulting in a reduced consumption and loss of orthophosphoric acid; (b) modification by phosphates of titanium and aluminum; in this case the loss of orthophosphoric acid is reduced by 5-8%; (c) modification by hydrate compounds of aluminum and silicon, precipitated by carbonation without the use of orthophosphoric acid. The modification of rutile by these  
Card 1/2

L 1876-66

ACCESSION NR: AP5022508

techniques results in an increase in strength and resistance to chalking and a decrease in pigment precipitation during storage of enamels and can be recommended for pigments designed for various weather-resistant enamels. "G. A. Prytkova and M. P. Potapova participated in the experimental work" "7

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: IC, G-C

NO REF SOV: 003

OTHER: 000

Card 2/2

NIKOL'SKIY, K.K., inzhener; ANUFRIYEVA, O.A., inzhener.

Measuring the difference of potentials between the cable sheath and the ground in using nonpolarisable electrodes. Vest.sviazi 15 no.12:10-12 D '55. (MLRA 9:3)

1. Mladshiy nauchnyy sotrudnik Tsentral'nogo nauchno-issledovatel'skogo instituta svyazi (for Nikol'skiy); 2. Zhdanovskiy telefonnyy usel goroda Moskvy (for Anufriyeva).  
(Electrolytic corrosion) (Electric measurements)

ANUPRIYEVA, O. F., Cand Med Sci -- (diss) "Vascular Reflexes and Respiratory Movements in Women During Psychoprophylactic Preparation for Labor." Kuybyshev, 1957. 16 pp (Kuybyshev State Medical Inst, Chair of Obstetrics and Gynecology, Chair of Normal Physiology), 200 copies (KL, 48-57, 109)

- 65 -

ANDREY VA, O.F., Cand Med Sci --(disc) "Vascular reflexes, respi-  
ratory movements, and the clinical course of labor in women <sup>under</sup>  
/ psycho-prophylactic preparation <sup>for</sup> labor." Pugachev, 1959.  
Sov. (Pugachev State Med Inst. Chair of Obstetrics and Gyna-  
ecology. Chair of Normal Physiology), 220 copies (11, 2-59, 131)

-69-



TANISYREV, N.I.; ANUFRIYEV, P., red.

[Allowances, fits and technical measurements; manual for students of secondary specialized correspondence schools] Dopuski, posadki i tekhnicheskie izmereniia; uchebno-metodicheskoe posobie dlia uchashchikhsia zaochnykh srednikh spetsial'nykh uchetnykh zavedenii. Penza, Penzenskoe knizhnoe izd-vo, 1963. 17 p. (NIRA 17:6)

1. Penza. Mashinostroitel'nyy tekhnicheskii univ.

ANUFRIYEVA, R.

Participation of earthworms, oniscoideans and lower insects  
in the decomposition of vegetative litter. Vop. biol. i  
kraev. med. no.4:265-270 '63. (MIRA 17:2)

CHERNAYA, L.S.; AMIFRIYEVA, R.V.

Trilonometric determination of zinc and lead in electrolytic  
baths. Zav.lab. no.11:1297-1298 '59. (MIRA 13:4)  
(Zinc— Analysis) (Lead— Analysis)

9.9810

144525

8/831/62/000/010/003/013  
E032/E514

AUTHOR: Anufriyeva, T. A.

TITLE: Anomalous absorption in LUF calculations

SOURCE: Ionosfernyye issledovaniya. Sbornik statey, no.10.  
V razdel programmy MGG (ionosfera) Mezhduv. geofiz.  
kom. AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 21-26

TEXT: The aim of this work was to compare the absolute magnitude of absorption (L, db) with changes in the minimum usable frequency  $f_{min}$  in order to determine whether  $f_{min}$  is an adequate qualitative characteristic of absorption. The analysis is based on the hourly values of L at 2.2 Mc/sec and the values of  $f_{min}$  reported by the Canadian stations at Ottawa, Baker Lake, Churchill and Resolute Bay and also noon values for L and  $f_{min}$  obtained at Moscow and Ashkhabad in July, September and December, 1957. Analysis of diurnal changes in L and  $f_{min}$  indicated that in most cases there was a good correlation between them during disturbed days. During quiet days the correlation between L and  $f_{min}$  was also good although there were cases for which the correspondence between the variation in  $f_{min}$  and in L was not

Card 1/2

Anomalous absorption in ...

S/831/62/000/010/003/013  
E032/E514

complete. A study was also made of the latitude distribution of absorption deduced from L and  $f_{min}$  data. According to the L data, the anomalous absorption at high latitudes exists during both disturbed and quiet days. Daytime data for L during quiet days show that the absorption decreases with increasing latitude, although a local increase was found for the auroral zone. In the summer, the absorption during the morning hours increases with increasing latitude. In September and December the maximum absorption is observed in the auroral zone. The anomalous absorption has two maxima, namely, in the auroral zone and in the polar region. In the winter the absorption reaches a maximum in the auroral zone and falls off rapidly north and south of this zone. It was found that the LUF calculated by the method reported by A. P. Kazantsev (Trudy IRE, 1956, No.2) are not in agreement with experimental values for both quiet and disturbed days. This is said to indicate that the forecasting of LUF based on this method does not correctly take absorption into account. There are 5 figures.

Card 2/2

ACCESSION NR: AP4013150

8/0203/64/004/001/0180/0183

AUTHOR: Anufriyeva, T. A.

TITLE: Change in the height of maximal electron concentration in the  $F_2$ -zone

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 1, 1964, 180-183

TOPIC TAGS:  $F_2$ -zone, electron concentration, ionosphere, ionospheric magnetic disturbance, negative ionospheric magnetic disturbance, ionosphere model, synoptic map

ABSTRACT: The author has attempted to give a more complete picture than heretofore of the geographic distribution in deviations of  $h_{max}$  (the height of maximal electron concentration) in the  $F_2$ -zone from the median values for quiet and disturbed days. She has also examined the probability of various time changes in  $h_{max}$  for different latitudes. The data come from 39 stations of a world-wide network extending from lat  $70^\circ$  N to lat  $70^\circ$  S. The author has computed  $h_{max}$  on the basis of three different ionosphere models: one-layer, two-layer, and three-layer. From these values she has plotted synoptic maps for changes in  $h_{max}$  on quiet and dis-

Card 1/2

ACCESSION NR: AP4013150

turbed days. These studies show that  $h_{\max}$  is very stable. Large increases are possible only during strong negative ionospheric magnetic disturbances. Large decreases in  $h_{\max}$  are rarely observed, and when they do occur they happen chiefly near the equator. The probability of change in  $h_{\max}$  computed for Gor'kiy proved to be  $\pm 15\%$ . Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery\* i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, Ionosphere, and Propagation of Radio Waves AN SSSR)

SUBMITTED: 25Jul63

DATE ACQ: 02Mar64

ENCL: 00

SUB CODE: AS, PH

NO REF SOV: 006

OTHER: 000

Card 2/2

ANUFRIYEVA, T.A.

Altitude variation of the maximum electron concentration in the  
F<sub>2</sub> region. Geomag. i aer. 4 no.1:180-183 Ja-F'64.

(MIRA 17:2)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya  
radiovoln AN SSSR.



POZIGUN, I.I.; (NUPRIYEV), I.I.

Bending refraction of potassium tetraiodocadmiate. Nauch.  
ezhegod. Khim. fak. Od. un. no. 2:46-49 '61. (MIRA 17.8)

ANUFRIYEVA, V.I. [Anufrieva, V.I.]

Automatic "SAL-1" tin can production line. Khar.prom. no.4:79-80  
O-D '62. (MIRA 16:1)  
(Tin cans) (Assembly-line methods)

ANUFRIYEVA, V.I.

Created by Simferopol' workers. Mashinostroitel' no. 1:24  
Ja '66. (MIRA 19:1)

ANUFRIYEVA, V.K.

Exocrine function of the pancreas in diseases of the biliary tract and secretory insufficiency of the stomach. Nauch. trudy Kaz. gos. med. inst. 14:345-356 '64. (MIRA 18:9)

1. Kafedra gosital'noy terapii No.1 (zav. - prof. K.A. Mayanskaya) Kazanskogo meditsinskogo instituta.

ANDRIYAN, V.P.

Bloodsucking Diptera in nest-dwelling birds at the Oka  
reservation. Med. paraz. i paraz. bol. 33 no.2:161-165  
Mos- Ap '64 (MIRA 18:1)

1. Kafedra entomologii Moskovskogo universiteta, ineni  
N.V. Lomnosova.

USSR/Chemistry-Xanthogenic Acid

Dec 48

"Analysis of Commercial Xanthogenates," Yu. V. Klimenko, I. A. Kakevskiy, Ye. I. Silina, Ye. P. Anufriyeva, Ural Affiliate Of Mekhanobr Inst, 6 pp

"Zavod lab" Vol XIV, No 12

Summarizes existing methods of xanthogenate analysis: (1) Acidimetric, (2) precipitation, (3) crystallization, and (4) iodometric. Describes own method in detail. Xanthogenate is titrated against lead acetate, using sodium rhodizonate as an indicator.

PA 49/49T35

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CIA-RDP86-00513R000101820009-0

ANDERSON, Y. V.

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000101820009-0"

ANUFRIYEVA, YI. V.

ANUFRIYEVA, YI. V. : "Investigation of luminescent anthracene and its derivatives in polystyrene". Leningrad, 1955. Acad Sci USSR. Inst of High-Molecular Compounds. (Dissertation for the Degree of Candidate of Physicomathematical Sciences.)

SC: Knizhnaya letopis' No. 47, 19 November 1955. Moscow.



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11-4-26/30

**AUTHORS:** Anufriyeva, Ye.V., Vol'kenabteya, E.V. and Razgovoreva, T.V.

**TITLE:** Study of Vitrification by a Luminescence Method. (Izucheniye steklovaniya metodom lyuminesentsii.)

**PERIODICAL:** Optika i Spektroskopiya, 1958, Vol.IV, No.3, pp.414-415 (USSR)

**ABSTRACT:** The authors studied the following luminescent plastics: polyvinyl alcohol containing crystal violet, polyvinyl alcohol with auramine, ethyl cellulose with auramine, polyvinylbutyral with auramine, and polyvinylbutyral with Michler's ketone. The authors also studied glucose with auramine. The polymers were used in the form of films 30-50  $\mu$  thick. The amount of luminescent dyes present in polymers was 0.5-5%. Luminescence was excited by means of mercury lines. The fluorescence spectra were recorded by means of a monochromator UM-2 and a photomultiplier FEU-19. Dependence of the fluorescent intensity I on temperature was measured at a wavelength corresponding to the maximum of fluorescence (495 m $\mu$  for auramine, 638 m $\mu$  for crystal violet, 500 m $\mu$  for Michler's ketone). For all the substances studied,

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Study of Vitrification by a Luminescence Method.

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with the exception of ethyl cellulose, a sharp break was found in the curve of the temperature dependence of the fluorescent intensity  $I$  at the vitrification temperature  $T_g$ . This break is most pronounced when auramine is used (curve 1 in Fig.1 shows auramine in polyvinylbutyral). In the case of ethyl cellulose the vitrification temperature lies outside the studied interval of temperatures (20-100°C) and therefore no break is shown in the fluorescent intensity curve (Fig.1, curve 2). The value of  $T_g$  was found to depend a little on the rate of heating or cooling. In agreement with predictions of the theory in Ref.5 the curves of the temperature dependence of the fluorescent intensity show hysteresis near  $T_g$  on successive heating and cooling of samples (Fig.2). There are 2 figures and 6 references, of which 5 are Soviet and 1 American.

ASSOCIATION: Institute of High-Molecular Compounds, Academy of Sciences of the USSR (Institut vysokomolekulyarnykh soedineniy AN SSSR)

SUBMITTED: July 13, 1957.

Card 2/2

- |                                   |                                  |
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| 1. Plastics--Luminescence--Theory | 2. Plastics--Fluorescent spectra |
| 3. Photomultipliers--Applications | 4. Monochromators--Applications  |

SOV/51-7-4-11/32

AUTHORS: Anufriyeva, Ye.V., Vol'kenshteyn, M.V. and Razgovorova, T.V.

TITLE: Vittrification of Polymers and Luminescence

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 505-510 (USSR)

ABSTRACT: The paper describes a study of mobility of macromolecules and vittrification of polymers, using luminescence of certain molecules introduced into these polymers. It is known that the luminescence of "non-rigid" molecules depends strongly on the viscosity of the medium, falling with decrease of viscosity (Refs 4-6). This is because luminescing molecules lose their energy of excitation which is transferred to internal rotation; such a transfer occurs more easily when viscosity of the surrounding medium is low. On vittrification the polymer viscosity rises sharply and the mobility of macromolecules or their parts falls considerably. Dyes placed in small quantities in polymers undergoing vittrification were found to be sensitive to these changes of viscosity; for example intensity of luminescence of auramine or Mikhler's ketone present in polyvinylbutyral shows a discontinuity at 70°C which is the vittrification temperature ( $T_g$ ) of polyvinylbutyral (Ref 7). The present paper deals with several other polymers which contained small amounts of phosphors consisting of "non-rigid" (auramine) and "rigid" (rhodamine B,

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## Vitrification of Polymers and Luminescence

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rhodamine G, rhoduline orange, safranine, molecules. The authors measured the temperature dependence of luminescence of the system polymer-phosphor at temperatures from +20 to +120°C (this range included  $T_g$  temperatures of all polymers studied). Luminescence was excited with 436 or 365 mμ mercury lines. The temperature dependences of the fluorescence maximum and the total emission were recorded both on heating and cooling. A photomultiplier FEU-19 was used as a receiver. The authors recorded also the fluorescence spectra at various temperatures below and above  $T_g$  of the polymer-phosphor systems. The spectra were measured using a monochromator M-2 and a photomultiplier FEU-19. The samples were in the form of films 20-30 μ thick. The phosphors were introduced into polymers either by simultaneous dissolution of the polymer and the phosphor (dye) with subsequent removal of the solvent or by adsorption of the dye on the polymer film. The phosphors were present in amounts varying from 0.5 to 1%. "Non-rigid" molecules of auramine were introduced into polyvinyl acetate, polyvinylformal, polyvinyl alcohol, polystyrene, polychlorvinyl, polymethyl methacrylate. The temperature dependences of the luminescence intensity  $I(T)$  are shown in Figs 1 and 2. In all cases the luminescence intensity had a discontinuity at  $T_g$ . Two discontinuities were observed on the  $I(T)$  curves of polyvinyl alcohol and

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SDV/51-7-4-11/22

polyvinylformal. One of these discontinuities occurred at  $T_g$  and the other at a lower temperature. The discontinuity at  $T_g$  in all polymers implies stronger quenching of luminescence of auramine above  $T_g$ ; this is due to transfer of the electron energy to vibrations and rotations (rotation of benzene rings of auramine with respect to one another). The second discontinuity at  $T < T_g$  is due to final disappearance of the residual mobility of macromolecules within the molecular "net" of the vitrified polymers. In experiments with phosphors consisting of molecules with "rigid" structure it was found that the presence of the discontinuity on the  $I(T)$  at  $T_g$  depended on the choice of the polymer and the phosphor. A discontinuity at  $T_g$  was observed in the case of rhodamine B in polyvinylbutyral (Fig 4, curve 3), but not in the case of rhodamine B in polyvinyl alcohol (Fig 4, curve 2) or in polyvinylformal (Fig 4, curve 1). No discontinuity was observed at  $T_g$  in the case of rhoduline orange in polyvinylbutyral (Fig 3, curve 2) but it was observed when rhoduline orange was introduced into polyvinyl alcohol (Fig 3, curve 1) or polyvinylformal. Discontinuities at  $T_g$  were also observed in safranine-polyvinylbutyral (Fig 5, curve 1) and safranine-polyvinylformal (Fig 5, curve 2) systems. All this indicates that quenching of

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Vitrification of Polymers and Luminescence

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luminescence of "rigid" molecules above  $T_g$  is governed by the nature of interaction between the phosphor molecules and the polymer macromolecules. These interactions may be in the form of transfer of the electron energy of the phosphor molecules to the polymer macromolecules or in the form of photochemical reactions which produce irreversible changes in the phosphor molecules. There are 5 figures and 10 references, 8 of which are Soviet and 2 English.

SUBMITTED: March 3, 1959

Card 4/4



24666

S/081/61/000/009/013/015  
B101/B205

5.3100

AUTHORS: Anufriyeva, Ye. V., Vol'kenshteyn, M. V.  
TITLE: Luminescence method of investigating the vitrification of polymers  
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 9, 1961, 637.  
abstract 9P31 (9R31)(V sb. "Stekloobrazn. sostoyaniye",  
M.-L., AN SSSR, 1960, 138-142, Diskus., 153-154)

TEXT: The authors studied the effect of the vitrification of polymers on the intensity of fluorescence of molecules with a non-rigid structure, which had been introduced into the polymer (auramine, crystal violet, Michler's ketone) in polyvinyl acetate, polyvinyl alcohol, and other media between 20 and 100°C. All curves obtained show a break for  $T - T_v$ . X

If  $T$  is greater than  $T_v$ , the local viscosity of the medium changes accordingly to such an extent that a mutual rotation of the parts of the luminescing molecule and a quenching of luminescence become possible. The (I)T curves of auramine in polyvinyl alcohol show a further break

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Luminescence method of ...

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at 55°C, which is caused by hydrogen bonds. When investigating the system polymer - luminescing molecule with a rigid structure, a break is observable only with a certain choice of the system. When investigating the polarization and the "retarded" phosphorescence of rhoduline orange in polyvinyl alcohol, a break appears only in the latter case. Investigations of this kind give new and essential information about the mobility of macromolecules with which luminescing molecules are connected.  
[Abstracter's note: Complete translation.]

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[illegible]

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